

Controllable movement of single photon source in multifunctional magneto-photonic structures

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– SUPPLEMENTARY INFORMATION –

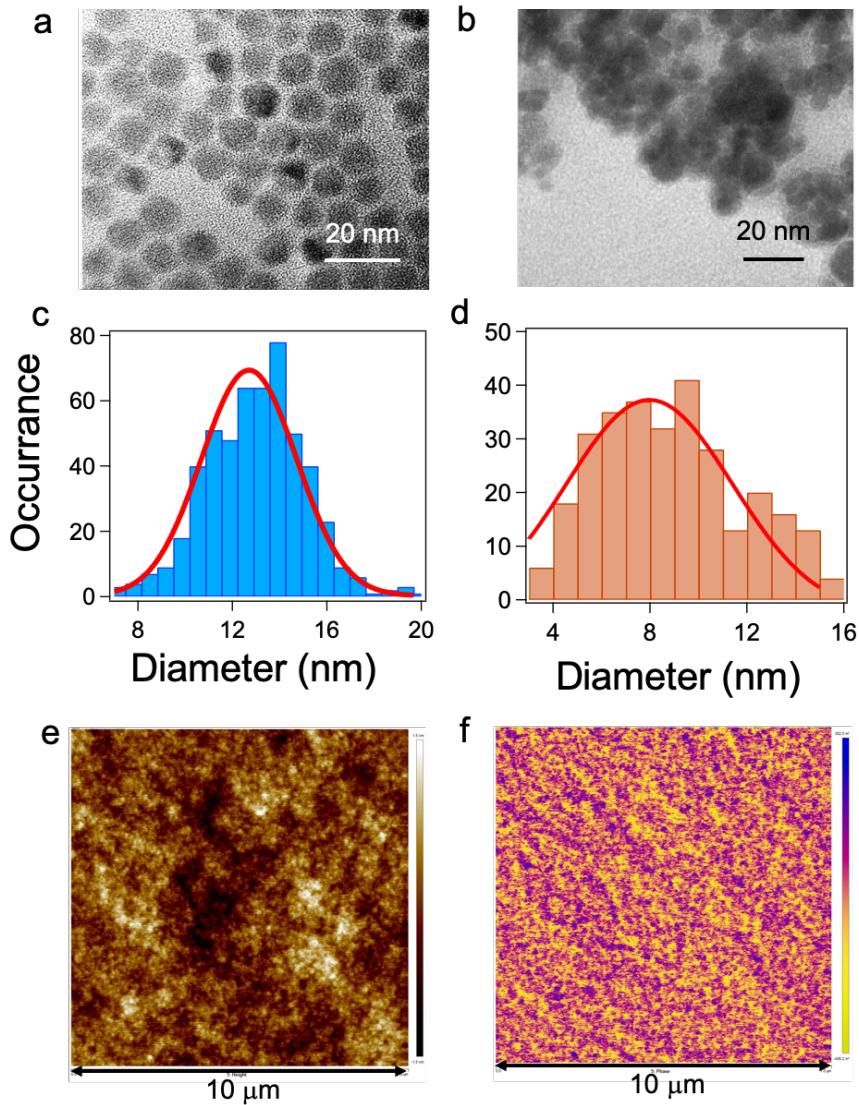


Figure S1. Transmission electron microscope (TEM) images of (a) the colloidal quantum dot (CdSe/CdS), and (b) iron oxide nanoparticle (Fe₃O₄) with (c,d) their corresponding size distribution histograms, respectively. (e) The 100 μm^2 morphological atomic force microscope (AFM) image of the 10- μm -thick hybrid material spin-coated on the glass substrate. (f) The magnetic force microscope (MFM) image of the corresponding film.

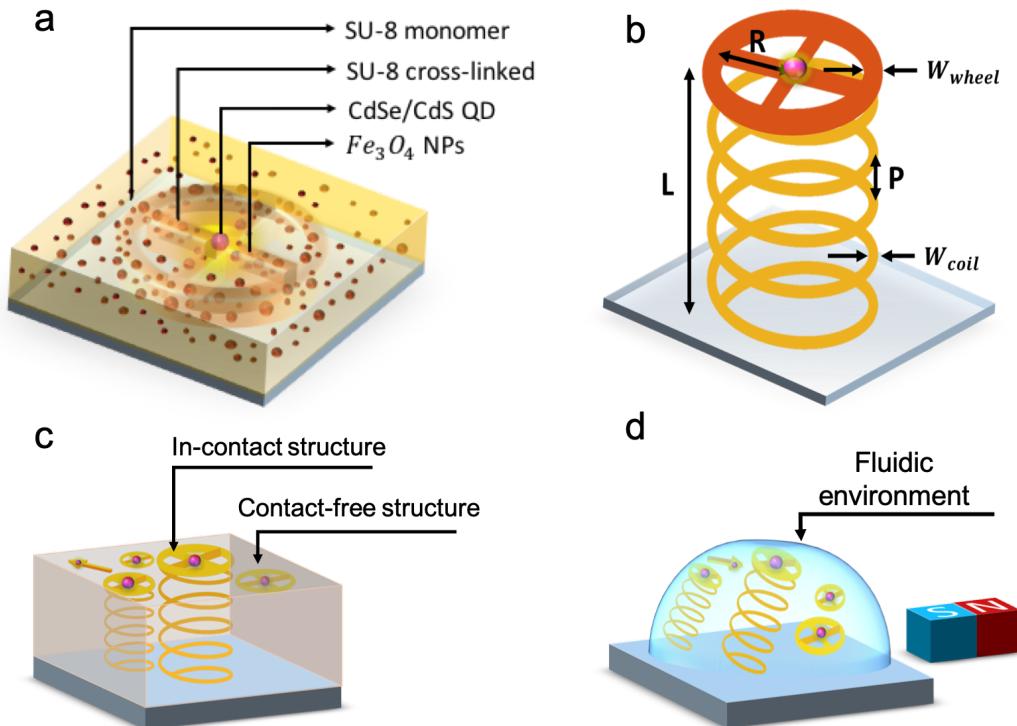


Figure S2. (a) Illustration of a contact-free device and chemical components within the structure. (b) Model illustration of in-contact device with its dimensions: radius, $R = 3 \mu\text{m}$, micro-wheel linewidth, $W_{\text{wheel}} = 1 \mu\text{m}$, nano-coil linewidth, $W_{\text{coil}} = 0.5 \mu\text{m}$, vertical pitch, $P = 1.5 \mu\text{m}$, length of spring, $L = 7 \mu\text{m}$, and number of turns, $N = 4$, respectively. (c) Illustration of a sample containing both contact-free and in-contact devices right after the fabrication processes. (d) A bar magnet is introduced close to the sample in order to manipulate the structures in the fluidic environment.